

Delaware Environmental Literacy Plan



Defining Meaningful Outdoor Experiences



Children and adults benefit from quality time spent outdoors. Going outside is the first step in taking advantage of “meaningful outdoor experiences” across Delaware’s incredible resources.

The Children in Nature Coalition promotes quality time outdoors to increase environmental literacy of all Delawareans. First, we understand that parents and family members greatly influence a child’s values, beliefs and attitudes. Adults are the gatekeepers to parks, beaches, trails and nature centers, or perhaps it is only with a parent’s permission that a child can gain access to an opportunity to be outside. If adults embrace this notion and engage in meaningful outdoor experiences, they reap the benefits of a healthy, active and informed lifestyle along with the children they influence. Secondly, we desire teachers and administrators who support environmental and outdoor field work at all levels. Outdoor experiences help develop critical and creative thinking for all students to be college and career ready.

Benefits of taking students outside the classroom?

- Better performance on standardized measures of academic achievement in reading, writing, math, science and social studies
- Reduced discipline and classroom management problems
- Increased engagement and enthusiasm for learning
- Greater pride and ownership in accomplishments
- College and career STEM job readiness.

Benefits of going outside to engage in nature with children, families and community members?

- More chances to physically move and practice a healthy lifestyle
- Better understanding of the natural resources that our state provides
- Builds a more well-rounded community of people who know about the environmental issues that directly and indirectly affect their well-being
- Increased exposure to careers and jobs where people enjoy working outdoors

Meaningful Outdoor Experiences for Students While in a School Setting

We offer a broad definition that supports most environmental activities which help educate students about the importance of our natural resources, ecological systems and how we interact with them. **Meaningful outdoor experiences during school time are defined by the following criteria:**

- **Occurs at a minimum of at least once at each grade ban (K-2 / 3-5 / 6-8 / 9-12):** An organized continuum of environmental education for grades K-12 is integrated into each grade ban. Outdoor experiential learning is directly connected to carefully planned instructional units that are aligned with state and local standards and curricula. Providing quality outdoor education over the span of a student's career improves environmental literacy and connection to local areas in his or her own state.
- **Teacher-engagement:** Even though many resources exist that strengthen an instructional unit (non-formal educators, guest speakers, tour-guides), the teacher remains the central-driver for knowing what students need and how they learn best; the teacher functions as primary planner and chief facilitator throughout the field experience. The teacher should also build a professional relationship with the host site.
- **Localized and place-based:** Students explore topics that promote Delaware's unique history, culture, environment, economy, literature or art. Students understand relevance because they may live near the location of their study.
- **Practice-based, investigative or project-oriented that cannot be achieved in the walls of a classroom:** Projects should involve natural systems (ecosystems, waterways, habitats) and/or social systems (communities, schools, townships) and focus on investigating solutions to problems. For example, the best place to learn about a forest is near trees, paths and areas where live species are found, rather than in textbooks. Engaging in the outdoors is best for students but supplemental DVDs, tours, demonstrations, etc. do reinforce the connection to the main content.
- **Function as a key component of a grade's instructional program:** Meaningful outdoor experiences can fit in the teaching sequence at significant times when unique opportunities exist to make strong connections between concepts and content. These events are carefully planned and coordinated ahead of time to land at appropriate points during the students' educational process. The field trip should relate to what students are learning in school, and not be a break from their regular instruction.
- **Sustained:** Offering experiences that are connected, organized, relevant and sustained over a period of time helps deepen the learning rather than short, one-time excursions that stand alone, isolated and somewhat disconnected from the unit of study.
- **Enhanced by natural resource personnel:** Utilize the expertise of non-formal educators, such as scientists, interpreters, etc. who are vetted to teach at a developmentally appropriate level for the given content or experience.

- **For all students:** Reasonable adaptations are made for students with disabilities, special needs, learning differences or certain situations, such as economic disadvantage or cultural or racial differences. Field trips should not only be available to more privileged students, nor should they have to earn the right to attend the field trip.

Meaningful Outdoor Experiences for Children, Families and Community Members

We encourage outdoor activities that help people learn about the importance of our natural resources, ecological systems, and how we interact with them. These activities address opportunities for students to learn when they are outside of the typical school day or school year. **Meaningful outdoor experiences for children, parents and community members are defined as:**

- **Intentional:** *The experience intentionally raises awareness of nature, the benefit of being outside and engaging with nature or the environment, or specifically highlights making good decisions that benefit our well-being or the local ecosystem. For example,*
- **Establish or celebrate the heritage of a family, community, or physical place:** *A family returns to a favorite park or vacation spot each year to share why that location is special to those members. Traditions, stories or memories are discussed and celebrated. If discussion of a natural resource is included, this increases the value pertaining to meaningful outdoor experiences for a Children in Nature activity.*
- **Action oriented:** *Paddling a kayak, riding bikes, hiking trails, etc.; cleaning up the beach, helping to identify frog calls, counting birds, etc. This can be defined as “learning-by-doing.”*
- **Builds a connection to people, place and experience:** *Conversations about history, culture, heritage, economics, ecology, etc. rather than listening to music or texting while experiencing our natural environments.*
- **Engaging the senses:** *The experience helps people hear nature, see nature, get the body outside, taste the salt of the ocean, smell the sulfur of a marsh, etc.*
- **Provokes thought and feeling:** *Think or talk about how the experiences make you feel about the natural world or the environment. Encouraging critical thinking is part of the meaningful outdoor experience; otherwise feelings about nature will not build.*
- **Observes or experiences natural elements in the outdoors:** *Carefully observe the detail seen in the surrounding flora, fauna and water features; develop an understanding of the interrelationships between those elements. For example, notice when geese arrive or Osprey depart in your area, something that is part of a much larger picture than simply what is right in front of us.*

The Need for an Environmentally Literate Community in Delaware

What is Environmental Literacy?

A community is environmentally literate when its members possess the knowledge, skills, understanding, attitude, experiences, and motivation to sustainably use, enjoy and protect natural and cultural resources. Environmentally literate Delawareans can:

- Analyze global, social, cultural, political, physical, economic and environmental relationships;
- Understand environmental processes and systems, including the dynamics of human interaction;
- Comprehend environmental issues and know how to address them;
- Use this understanding to make responsible decisions about environmental, economic and social issues.



Each day across Delaware, our citizens are making decisions that impact the environment.

- A **farmer** chooses a product to fertilize his fields (there are more than 2,400 farms in Delaware). The value of agriculture to Delaware's economy is more than \$1 billion annually.
- A **fisherman** selects which fuel to power a vessel (fishing contributes more than \$149 million annually to Delaware's economy).
- A **government employee** chooses to drive alone or carpool (there are more than 60,000 government workers throughout the state).
- A **family** chooses an energy efficient home that is closer to schools, parks and healthy communities (new home construction continues to rise, while Delaware's overall population is projected to reach 1 million residents shortly after 2020).

Any one of these decisions has a limited environmental impact; however, the collective impact of hundreds and thousands of such decisions can and does have an effect on the environment and our lives. As environmental challenges increase with population growth, and more stress is put on our natural systems, environmentally literate citizens are needed to create solutions.



Environmentally literate individuals and communities can prepare the next generation to become environmentally literate, as well. Jobs of the future will require environmental literacy. The National Science Foundation reports that there are currently between two and three million unfilled positions in the STEM areas of science, technology, engineering and mathematics. The broad goal of environmental education is to develop a population that is aware of and cares about the environment and its associated problems, and that has the knowledge, skills, attitude, motivation and commitment to work individually and collectively toward solutions for current challenges and the prevention of new ones.

All careers have some interaction with the environment and the next generation needs to be prepared to solve environmental challenges. As a society, we must be purposeful about developing environmental literacy if we hope to survive and prosper in the future.

How do we achieve Environmental Literacy throughout Delaware?

Embracing the challenge of developing environmentally literate citizens requires effort from leadership in education, in our communities and in our state government. There are four areas where we commonly gain our knowledge, skills, and attitudes: **home, work, school, and at leisure.**

At Home: Families

There are many opportunities to strengthen environmental literacy in the home setting. This area includes families, consumers and faith-based groups. In the home setting, people can access information when making decisions as a family and make wise choices as a consumer when making purchases. Choices made in the home include buying goods and services that are affordable, economically and socially responsible and environmentally friendly. Faith-based groups can provide communities to support people as they develop attitudes and take actions towards environmental literacy.

The Delaware Environmental Literacy Plan outlines suggestions for creating resources, designing programs and serving Delaware residents in the home. The following considerations should be made when providing education in regard to environmental literacy for those in the home setting:

- Guidance and education in the home can help families make socially responsible and environmentally friendly lifestyle choices, can help to create wise consumers and can support faith communities in their moral and ethical considerations.
- Multi-generational programs and sensitivity to cultural diversity can offer rich opportunities for furthering environmental literacy.

GOAL 1 Take responsible steps by practicing sustainable behaviors.

- 1.A Reduce, reuse, recycle.
- 1.B Conserve natural resources.
- 1.C Support local businesses.
- 1.D Use alternative transportation when possible.
- 1.E Utilize “green” building and home-improvement materials and practices.

GOAL 2 Cultivate lifelong learning for environmental literacy.

- 2.A Provide meaningful outdoor experiences for families or groups of friends to build lasting memories and positive foundations for the love of nature.
- 2.B Support environmental literacy in schools.
- 2.C Visit local educational venues such as nature centers, zoos, aquariums, museums and state parks to learn about the environment.
- 2.D Select appropriate media (books, magazines, websites, apps, movies, television, etc.) that will inform and engage family members with the environment
- 2.E Discuss environmental career paths with children that can positively influence their plans about college or career.



GOAL 3 Increase time spent in nature and engaged in nature recreation.

- 3.A Permit children to play outdoors with no imposed agenda or forced structure (let the children decide what to do, where to explore, and how to play – permit choice, instead of only organized sports or planned activities).
- 3.B Utilize natural outdoor spaces that encourage play, exploration, and discovery (i.e. invite flora and fauna into your backyard, build a birdhouse, create bird feeders or bird baths, plant a garden, grow plants that attract butterflies, etc.).
- 3.C Intentionally plan time to unplug headphones, cell phones, video games, computers, etc. in order to plug into nature or nature activities (hikes, stargazing, sketching outside, reading under a tree, biking, swimming, etc.).
- 3.D Embrace technology that will enhance your outdoor experience such as using applications for tree and bird ID, stargazing or geocaching.

At Work: Communities

Developing a greater sense of the importance and impact of environmental literacy in the workplace can not only shift attitudes and actions, but may also increase productivity, efficiency and profitability. Workplace settings include business communities, landowners and producers, the media and governmental units and organizations of all levels.

Often, the best way to achieve business success and impact the business community is through networks that supply or support guidance for environmental literacy practices. If this guidance is to be useful and relevant, it must consider the mission of the organization or business, provide information that relates to the success of the business and take into account the needs and goals of future generations of employers and employees. Increasing environmental literacy in the workplace should also positively affect the health, safety, and welfare of employees and employers.

The Environmental Literacy Plan addresses ways businesses, producers, governments and the media can effect change in their communities. The following considerations should be taken into account when striving for environmental literacy in the workplace:

- Best practices within a business or industry should be recognized, shared, and replicated.
- Relationships between businesses and their local communities should be created and/or strengthened.
- At-Work Groups include:
 - **Businesses** (sole proprietors, small and large businesses, business associations, and networks)
 - **State and Local Government** (Governor, State Representatives, Mayors, Municipal Leaders, State Divisions and Departments, Advocacy Groups, Policy Officials, etc.)
- **Community Groups and Organizations** (Non-Government Organizations, Civic Organizations, Youth Groups, Faith-based Groups, Cultural Groups, General Public)



GOAL 1 Adopt and implement sustainability as an organizational value.

- 1.A Review internal organizational procedures or models that facilitate environmentally friendly or sustainable behaviors and implement industry-specific best practices.
- 1.B Recognize and celebrate efforts and achievements that support the development of environmental literacy within the organization.
- 1.C Collaborate with other organizations and agencies to increase sustainable development or environmentally responsible behavior throughout the community or state.
- 1.D Designate, train and equip key personnel to guide internal and external practices that promote natural resource conservation, preservation, or environmentally responsible actions.

GOAL 2 Become a resource for schools and youth development organizations.

- 2.A Involve youth in solving local environmental issues.
- 2.B Provide opportunities for hands-on, real- world experiences for students and youth to connect with their local natural resources.
- 2.C Identify key staff and provide tools for them to interact with schools and non-formal education centers.
- 2.D Provide technical support education organizations (school districts, museums, major centers, etc.) to leverage and utilize the organization’s assets, expertise, infrastructure and systems.
- 2.E Provide financial support to educational and youth organizations that strive to provide opportunities for increasing environmental literacy.

At School

Our world is increasingly complex and scientific knowledge is critical to understanding it. When considering current events, choosing and using technology or making informed decisions about one’s health care, scientific understanding is key. Science is also at the heart of this country’s ability to innovate, lead and create the jobs of the future. Integrating environmental literacy education across all disciplines and at all age levels should not only help learners gain knowledge and skills related to utilizing and preserving limited natural resources, but also make learning experiences more fulfilling and relevant to the world around us. Students, whether they become technicians in hospitals, environmental scientists, workers in high-tech manufacturing facilities or Ph.D. researchers, must have a solid K-12 scientific, environmentally literate education. (NGSS, pg. xiii)



Next Generation Science Standards and Common Core reflect what a student should understand and accomplish by high school graduation to be successful for college and their careers. This Environmental Literacy Plan includes school teachers, non-formal educators, administrators, students and faculty at institutes of higher education, in homeschool communities and in early childhood education and care settings. Student engagement with science is best achieved in real situations in the community.

Both formal and informal education experts underscore the connection between science and the neighborhood that students reside in. Effective approaches can include engaging in outdoor exploration and citizen science using local natural resources. Informal settings for learning can broaden participation in science and engineering for youth from all communities.



- Programming should be relevant to the educational and developmental levels of all students and inclusive of all learners.
- In-school instruction and meaningful outdoor experiences that support environmental literacy can promote the critical thinking skills needed for academic achievement in all subject areas.
- Professional development opportunities should be made available for formal and non-formal teacher training that infuses environmental education in all grade levels.

- **Classroom Teachers** (known as “formal” educators) will include all of the following groups:
 - **Pre-Service Teachers** (those who are studying in college to become teachers)
 - **Non-Formal Educators** (Environmental or Cultural Interpreters, Historians, Docents, etc.)
 - **Education/School Support** (Parent Teacher Organizations, School Administrators, Teacher Associations, School Staff, Boards of Educations, State Department of Education, Other Educational Organizations)

GOAL 1: Integrate environmental education, Next-Generation Science Standards, Common Core, and Delaware Social Studies Standards.

- 1.A Identify where environmental education already exists within these standards.
- 1.B Identify ways environmental education can be integrated more effectively across the curriculum.
- 1.C Provide meaningful outdoor experiences for students that:



- Occur at least once in each grade band (K-2, 3-5, 6-8, 9-12)
- Promote Delaware’s unique history, culture, environment, economy, literature, and/or art.
- Engage practice-based, investigative or project-oriented activities in the natural environment.
- Develop sustainable experiences that continue through students’ academic careers.
- Enhance the experience with natural resource personnel to add expertise and promote career opportunities.

GOAL 2: Delaware schools and their grounds serve as community models for green landscape design, operation and energy efficiency and/or environmentally aware practices.

- 3.A All schools are enrolled either in the Federal Green Schools Program or the Pathways to Green Schools Program.
- 3.B Each school will choose a “Green” focus to increase environmental literacy:
 - Option 1 – Schoolyard Habitat
 - Option 2 – School Garden
 - Option 3 – NATURE STEM School (NATURE STEM projects conducted during each grade level)



At Leisure

Connecting Delaware residents to their community and local environment through recreation can help build environmentally literate communities. Involving residents in their community through outdoor activities should be perceived as a critical part of achieving environmental literacy. This plan provides suggestions that help establish safe and healthy communities where residents can be active, engaged and involved. When programs, resources and projects are created for leisure, the following considerations should be made:

- Opportunities should include service learning or community-based programming that builds relevancy and meaning in connecting the community to nature.
- Programs should be accessible to everyone while including elements that are customized for diverse age groups, cultures and special needs or circumstances.
- Recreational outdoor public spaces should be safe, welcoming and accessible and promote environmental literacy.
- Events, programs and learning activities should promote healthy lifestyles and recognize and promote opportunities for synergy between play, health and environmental literacy.
- Program providers should recognize potential in urban and suburban areas for environmental literacy and opportunities to facilitate unstructured recreation.
- Public learning opportunities should be offered by a variety of agencies, organizations, and individuals, including (but not limited to) nature centers, parks, museums, residential learning centers, club centers and zoos.

Integrating Environmental Education Builds Environmental Literacy

Specific goals provide the core for building environmental literacy for all of Delaware:

- Foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural areas.
- Provide every person with opportunities to acquire the knowledge, values, attitude, commitment and skills needed to protect and improve the environment.
- Create new patterns of behavior for individuals, groups and society as a whole toward the environment.
- Create job opportunities in STEM careers.





A special thank you to the Delaware Children in Nature Partners:

*Delaware Department of Natural Resources and Environmental Control

*Delaware Department of Education

*Nemours

*Delaware Nature Society

*Delaware Association for Environmental Education

*US Fish and Wildlife Service

*Division of Public Health

*Delaware Greenways/See You Outside

*Delaware Center for Inland Bays

Delaware Geographic Alliance

Child's Play by the Bay

Delaware Agricultural Museum and Village

The Rehoboth Beach-Dewey Beach Chamber of Commerce

Delaware Museum of Natural History

Delaware Sea Grant and University of Delaware at Lewes

The Nature Conservancy in Delaware

Delaware Department of Agriculture and Delaware Forest Service

Polytech School District

Southern Delaware Tourism

The YMCA of Delaware

Delaware STEM Council

Delaware Center for Horticulture

Delaware Outdoor Trail

The Jefferson School

Del-Mar-Va Council, Boy Scouts of America

First State National Historical Park, National Park Service

**Original Partners*